

MS27222M
27 November 2003
SUPERSEDING
MS27222L
22 July 1992

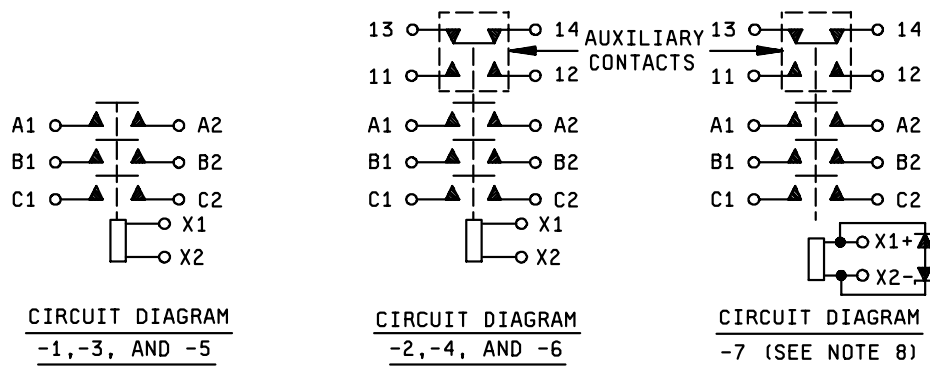
RELAYS, ELECTROMAGNETIC, 50 AMPERES, 3 PST
N. O. TYPE I, HERMETICALLY SEALED

This specification is approved for use by all Departments and Agencies of the Department of Defense.

STUD, THD .138-32 UNC-2A
NUT, .138-32 UNC-2B, CORROSION RESISTANT, 4 REQD
SPRING LOCKWASHER, NO. 6, CORROSION RESISTANT, 8 REQD
FLAT WASHER, NO. 6, CORROSION RESISTANT, 8 REQD
ON -2, -4, AND -6 ONLY



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Inches	mm	Inches	mm	Inches	mm
.010	0.25	.218	5.54	.812	20.62
.031	0.79	.250	6.35	1.156	29.36
.047	1.19	.254	6.45	1.812	46.02
.063	1.60	.297	7.54	2.170	55.12
.079	2.01	.328	8.33	2.190	55.63
.138	3.51	.391	9.93	2.687	68.25
.140	3.56	.438	11.13	3.250	82.55
.190	4.83	.625	15.88	3.337	84.76
.210	5.33	.656	16.66	3.734	94.84
.215	5.46	.750	19.05		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ± 0.031 (0.79 mm).
4. Coil and auxiliary terminals may use additional washer for terminal seat.
5. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.
6. Referenced Government documents of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation forms a part of this standard to the extent specified herein.
7. Terminal strength: High temperature pull and torque test not applicable.
8. When semiconductors are required, JANTX or equivalent screened semiconductors shall be used. Relays using suppression devices shall continue to operate should the suppression circuit be in a failure mode. Diodes shall have a peak inverse voltage of 600 V dc minimum.
9. For detail information, see tables I through V.

FIGURE 1. Dimensions and configurations – Continued.

REQUIREMENTS:

Dimensions, configuration, and circuit diagrams: See figure 1.

Dash numbers and general characteristics: See table I.

Contact data:

Load ratings: See table II.

Maximum contact drop:

Initial: 0.150 volts.

After life test: 0.175 volts.

Overload current (NO): 400 amperes.

Rupture current (NO): 500 amperes (only 5 operations rupture after minimum current test).

Coil data: See table III.

Duty rating: Continuous.

RFI specification: MIL-STD-461 (applicable to coil circuits of ac operated relays).

Electrical data:

Minimum insulation resistance:

Initial: 100 megohms.

After life or environmental test: 50 megohms.

Dielectric strength (sea level): 2 - 5 seconds (see table IV).

Dielectric strength (altitude): 1 minute (see table V).

Environmental characteristics:

Temperature range: -70°C to +125°C.

Maximum altitude rating: 80,000 feet.

Shock g level: 59 g's:

Duration: 6 - 9 ms.

Maximum duration contact opening: 2 ms.

Vibration (sinusoidal): See table VI.

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Non-operate:

G level: 15 g's.

Frequency range curve: 20 to 2,000 Hz.

Acceleration: 15 g's.

Conformance inspection.

Performance of groups B and C tests are not applicable..

Qualification by similarity: See MIL-PRF-6106.

Part or Identifying Number (PIN): MS27222- (plus dash number from table I).

TABLE I. Dash numbers and characteristics.

Dash number MS27222-	Type	Coil type	Terminal type	Mounting or mating socket	Auxiliary terminals	Max weight wt. lbs. 1/
1	I	dc	Lug	N/A	None	1.30
2	I	dc	Lug	N/A	With	1.35
3	I	ac	Lug	N/A	None	1.30
4	I	ac	Lug	N/A	With	1.35
5	I	ac	Lug	N/A	None	1.30
6	I	ac	Lug	N/A	With	1.35
7	I	dc	Lug	N/A	With	1.30

1/ Weights include terminal barriers and covers.

TABLE II. Rated contact load (amperes per pole) (case grounded).

Type of load	Life operat ing cycles x 10 ³	28 V dc				115 V ac, 1 phase				115/200 V ac, 3 phase 1/				See appro priate notes
		Main		Aux		Main		Aux		Main		Aux		
		NO	NC	NO	NC	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	
Resistive	50	50	---	5	5	50	---	5	5	50	---	---	---	
Inductive	10	50	---	5	5	50	---	5	5	50	---	---	---	
Inductive														
Motor	50	50	---	---	---	50	---	---	---	50	---	---	---	
Lamp	---	---	---	1	1	---	---	1	1	---	---	---	---	
Transfer load														2/
Mechanical life reduced current	100	12.5	---	1.25	1.25	12.5	---	1.25	1.25	12.5	---	---	---	
Mixed loads	50	Applicable in accordance with MIL-PRF-6106												

1/ Absence of value indicates relay is not rated for 3-phase application.

2/ Transfer load indicates relay is suitable for transfer between unsynchronized ac power supplies at rating indicated.

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TABLE III. Operating characteristics.

PIN MS 27222-	Coil data											Time - (milliseconds maximum)					
	Coil	Nominal			Max		Max pick-up voltage			Hold vol- tage 2/ 2/	Drop out volt- age 2/ 2/	Oper- ate 3/ 3/	Rel- ease 4/ 4/	Contact Bounce			
		Volts 1/ 1/	Freq Hz	Res Ω ±10%	Volts	Amp	Nor- mal 2/ 2/	High temp test	Cont cur- rent test					Main		Aux	
														NO	NC	NO	NC
1	X1,X2	28	dc	51	29	.6	18	21	22.5	7.0	1.5	25	10	2	---	---	---
2	X1,X2	28	dc	51	29	.6	18	21	22.5	7.0	1.5	25	10	2	---	4	4
3	X1,X2	115	60/ 400	N/A	124	.2	90	100	104	40	10	25	50	2	---	---	---
4	X1,X2	115	60/ 400	N/A	124	.2	90	100	104	40	10	25	50	2	---	4	4
5	X1,X2	115	400	N/A	124	.2	90	100	104	40	10	25	50	2	---	---	---
6	X1,X2	115	400	N/A	124	.2	90	100	104	40	10	25	50	2	---	4	4
7 5/	X1,X2	28	dc	51	29	.6	18	21	22.5	7.0	1.5	25	10	2	---	4	4

1/ CAUTION: Use of any coil voltage less than rated coil voltage will compromise the operation of the relay.

2/ Over the temperature range.

3/ With rated coil voltage.

4/ From rated coil voltage.

5/ Coil suppression (transient voltage back EMF) 43 V dc maximum.

Table IV. Dielectric strength (sea level).

Dielectric strength	28 V dc		115 V ac	
	Initial	After life tests	Initial	After life tests
Coil to case	1,250	1,000	1,500	1,125
Aux contacts	1,250	1,000	1,500	1,125
All other points	1,250	1,000	1,800	1,350

TABLE V. Dielectric strength (altitude).

Dielectric strength	28 V dc	115 V ac
Coil to case	500	500
Aux contacts	500	500
All other points	700	700

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TABLE VI. Vibration level (sinusoidal).

PIN MS27222-	5 - 10 Hz	10 - 55 Hz	55 - 750 Hz	750 - 1500 Hz
1, 3, and 5	.06 DA	.06 DA	15 g's	12 g's
2, 4, and 6	.06 DA	.06 DA	10 g's	10 g's

NOTES

Referenced documents. In addition to MIL-PRF-6106, this specification sheet references the following documents. (Government documents are available on line at <http://assist.daps.dla.mil/quicksearch> or www.dodssp.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094).

SPECIFICATIONS

Department of Defense

MS27243J - Relay, 10 Amp, 4PDT, Sealed, Class O

STANDARDS

Department of Defense

MIL-STD-461 - Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment

Custodians:

NAVY - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5945-1214-19)

Review activities:

Air Force - 99
Navy - EC

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using ASSIST Online database at www.dodssp.daps.mil.